REMARKS

The Final Office Action mailed January 13, 2003, has been received and reviewed. Claims 1 through 16, and 24 through 37 are currently pending in the application. Claims 1 through 16, and 24 through 37 stand rejected. Applicants propose to amend claims 1, 9 and 24, and respectfully request reconsideration of the application as proposed to be amended herein.

35 U.S.C. § 112 Claim Rejections

Claims 1 through 16, and 24 through 37 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection, as hereinafter set forth.

The Office Action alleges that

> Amended independent claim 1 and 24 (see paper no. 8, filed October 21, 2002) each newly recites the limitation that "the zone structure represents the operator commands in a format independent of any of the one or more input devices." Similarly, amended independent claim 9 newly recites the limitation that "the zone structure represents the movement commands in a format independent of the selected input device and the one or more associated telepresence devices. " Although the specification describes conversion of raw data into a zone structure (see page 13, for instance), the subject matter of "format independence" has not been described in the pending specification." (Office Action, p. 2.)

Applicants respectfully disagree that **"the subject matter of "format independence" has not been described in the pending specification."** The CCPA has described the written description requirement as follows: "It is not necessary that the application describe the claim limitations exactly, . . . but only so clearly that persons of ordinary skill in the art will recognize from the disclosure that appellants invented processes including those limitations." *In re Wertheim*, 191 USPQ at 96 (C.C.P.A. 1973). The Federal Circuit has addressed the written description requirement with results similar to those of the CCPA. A fairly uniform standard for determining compliance with the requirement has been maintained. For example, in *In re*

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Wright, the Federal Circuit commented that the fact that "the exact words here in question . . . are not in the specification is not important." (866 F.2d 422 (Fed. Cir. 1989).

Applicants' specification, among other things, recites:

> The **input conversion** module 34 receives the raw input from the input devices 22 and converts the raw input **into** a zone **structure** (p. 13, lines 4-5) . . .
>
> [t]he zone **structure** thus **enables any input** device 22 **to be compatible with** one or more [**output**] telepresence devices 60 (p. 13, lines 10-11) . . .
>
> the use of the zone **structure, allows any input** device **to control any** [**output**] telepresence device and input devices are interchangeable (p. 13, lines 15-17)
>
> raw data generated by **the input** devices **is processed into a common** zone **structure** that corresponds to the commands of the user (p. 26, lines 4-5) . . .
>
> **This modularized approach permits input** devices **to be easily interfaced with various** [**output**] telepresence devices (p. 26, lines 6-8)
>
> Additionally, **new input devices** and telepresence devices **are easily added** to the system **and are frequently interchangeable** (p. 26, lines 8-9) . . .
>
> **the generalized** zone **concept allows** the systems and methods of the present invention **to be easily expanded to encompass new devices** and new uses. (p. 26, lines 14-15; emphasis added.).

Applicants' specification is replete with disclosure of conversion of inputs from diverse input formats into a format-independent "common" structure for controlling output devices without requiring modification to the output devices (e.g., loading of additional output device drivers for a newly added input device). Nevertheless, Applicants' have amended independent claims 1, 9 and 24 to explicitly recite a verbatim modifier found within the specification. Therefore, Applicants respectfully request that the rejections of claims 1 through 16, and 24 through 37 based upon 35 U.S.C. § 112, first paragraph, be withdrawn.

Claims 2 through 8, 10 through 16, and 25 through 37 stand rejected under 35 U.S.C. § 112, first paragraph, due to their respective dependencies upon rejected base claims 1, 9 and 24. Applicants have amended the rejected base claims. Therefore, Applicants respectfully request that the rejections be withdrawn.

35 U.S.C. § 102(b) Anticipation Rejections

Anticipation Rejection Based on U.S. Patent No. 5,182,641 to Diner et al.

Claims 1 through 4, 6 through 16, 24 through 34, 36 and 37 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Diner et al. (U.S. Patent No. 5,182,641). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Clearly, Diner lacks not only the detail of Applicants' elements of the claimed invention, but Diner wholly lacks the disclosure of such elements.

INDEPENDENT CLAIM 1

The Office Action alleges that

> Regarding claim 1, Diner discloses a telepresence system for allowing an operator [Fig. 1, 19] to interact with a remote operating environment, the system comprising:
> one or more input devices . . . ;
> an **input conversion module for converting** the raw data **into a zone structure** wherein the zone structure represents the operator commands in a format independent of any of the one or more input devices;
> one or more **device modules corresponding to one or more telepresence devices** [Fig. 1, 13'-17'], . . .; and
> a **configuration module for associating** a specific one of the one or more input devices which generated the zone structure with a specific one of the one or more telepresence devices which responds to the telepresence device commands resulting from the zone structure (see [Diner] Column 4, Line 15-Column 5, Line 37). (Office Action p. 3; emphasis added.)

Input Conversion Module

Regarding any "Diner disclosure" of "an input conversion module for converting the raw data into a zone structure," the Office Action does not specifically point out a location of any

such teaching but rather generally cites columns 4 and 5 of Diner. A comprehensive scrutiny of columns 4 and 5, as well as other portions of Diner, for any forms of 'conversion' or 'transformation' of input data reveals Diner discloses only that

> (i) "a system controller 18 **receives all inputs** and commands from a human operator 19, **converts them into action**" (Diner, col. 4, lines 53-55);
>
> (ii) "The **transformation of** hand-controller **coordinates to selected** television camera **coordinates** is conventional." (Diner, col. 5, lines 16-18);
>
> (iii) "**graphics** which . . . **indicat[e]** that the hand-controller **coordinates** have been **transformed** to match the coordinate of that camera." (Diner, col. 5, lines 20-23); and
>
> (iv) "hand-controller **coordinates are transformed to correspond with the coordinates of a selected** camera", (Diner, col. 2, lines 40-41; emphasis added).

Clearly, Diner does not disclose "in as complete detail as is contained in the claim" Applicants' claimed element of "an input conversion module for converting the raw data into a zone structure wherein the zone structure represents the operator commands in a common format" as recited in Applicants' amended independent claim 1.

Device Module

Regarding any "Diner disclosure" of "one or more device modules corresponding to one or more telepresence devices . . . for converting the zone structure into telepresence device commands specific to the one or more telepresence devices", the Office Action specifically cites Diner's Figure 1, reference numbers 13

regarding the processing of signals to generate camera driving signals. Specifically, Diner is silent in that regard, disclosing vaguely that "a system controller 18 **receives all inputs** and commands from a human operator 19, **converts them into action** and instructs a graphics generator to perform its functions", (Diner, col. 4, lines 53-56; emphasis added).

Clearly, the "real cameras" of Diner does not disclose Applicants' claimed element of "one or more device modules corresponding to one or more telepresence devices, the one or more device modules for converting the zone structure into telepresence device commands specific to the one or more telepresence devices, the telepresence device commands corresponding to at least a portion of the operator commands", as recited in Applicants' amended independent claim 1.

Configuration Module

Regarding any "Diner disclosure" of "a configuration module for associating a specific one of the one or more input devices which generated the zone structure with a specific one of the one or more telepresence devices which responds to the telepresence device commands resulting from the zone structure," the Office Action does not specifically point out a location of any such teaching but rather generally cites columns 4 and 5 of Diner. A review of columns 4 and 5, and for that matter the entire four-corners of Diner, for any hint of a module that associates a specific input device corresponding to the zone structure with a specific one of a telepresence device which responds to telepresence device commands resulting from the zone structure. With regard to that element, Diner does not specifically discloses associating an input (e.g., camera, hand-controller) to an output (e.g., monitor). Diner makes generalized statements such as

(i) "the operator assigns the monitors to up to four of the five cameras and changes these assignments as the need arises" (col 5, lines 35-37),

(ii) "the [Diner] invention also contemplates that a separate monitor will be assigned to each of the cameras, but that the operator will be able to command through the system controller 18 which camera view will be displayed on which monitor in order to juxtapose views from any two cameras, for example. The initial assignments may be predetermined, left camera on the left-most monitor, right camera on the right-most monitor, etc., but the operator will have the option to change assignments." (col. 9, lines 8-17).

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(iii) "The operator may then select that camera for viewing if it is not currently selected or direct his attention to the corresponding monitor if that camera is currently selected." (Col 9, lines 56-59).

Clearly, Diner does not disclose "in as complete detail as is contained in the claim" Applicants' claimed element of "a configuration module for associating a specific one of the one or more input devices corresponding to the zone structure with a specific one of the one or more telepresence devices which responds to the telepresence device commands resulting from the zone structure" as recited in Applicants' amended independent claim 1.

Since a claim is anticipated only "if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," and furthermore since "the identical invention must be shown in as complete detail as is contained in the claim," Applicants' amended independent claim 1 cannot be anticipated by Diner because Diner fails to disclose many, if not all, of the elements of Applicants' amended independent claim 1. Therefore, Applicants respectfully request that the rejection of claim 1, and claims 2-8 depending therefrom, be withdrawn.

INDEPENDENT CLAIM 9

The Office Action alleges that

Regarding claim 9, this claim is rejected by the reasoning applied in the above rejection of claim 1, furthermore Diner discloses
receiving raw data representative of movement commands from the selected input device;
converting the raw data into a zone structure, wherein the zone structure represents the movement commands in a format independent of the selected input device and the one or more associated telepresence devices;
when the selected input device is selectively associated with the one or more associated telepresence devices, processing the zone structure with a device module corresponding to each of the one or more associated telepresence devices to obtain telepresence device commands corresponding to at least a portion of the movement commands for each of the associated telepresence devices; and
transmitting the movement commands to the associated telepresence

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devices
(see Column 4, Line 15-Column 5, Line 37) (Office Action, pp. 4-5.)

Applicants reaffirm the aforementioned arguments regarding the wholesale lack of teaching in Diner regarding any conversion of raw data into a zone structure. Furthermore, as argued above, Diner further lacks any teaching and certainly any teaching "in as complete detail as is contained in the claim" regarding processing a zone structure into telepresence device commands when an input device is associated with a telepresence device, as claimed by Applicants. Therefore, Applicants respectfully request that the rejection of claim 9, and claims 10-16 depending therefrom, be withdrawn.

INDEPENDENT CLAIM 24

The Office Action alleges that

> Regarding claim 24, this claim is rejected by the reasoning applied in the above rejection of claim 1 and 9; furthermore Diner discloses
> one or more of the telepresence devices provide a visual representation [Fig. 1, 27-30] of the operating environment; and a communication link [i.e. cables and busses] for transmitting the movement commands to the telepresence devices (see Column 4, Line 15-Column 5, Line 37).

Applicants reaffirm the aforementioned arguments regarding the absence of teaching in Diner regarding any disclosure of

> an input conversion module for receiving raw data representative of operator commands from at least one of the plurality of input devices and converting the raw data to a zone structure wherein the zone structure represents the operator commands in a common format; and
> a plurality of device modules corresponding to the plurality of telepresence devices, wherein the device modules receive the zone structure and convert the zone structure to movement commands corresponding to the operator commands for each respective telepresence device;

as claimed by Applicants in amended independent claim 24. Therefore, Applicants respectfully request that the rejection of claim 24, and claims 25-36 depending therefrom, be withdrawn.

CLAIM 37

The Office Action alleges that Diner discloses a communication link [i.e. cables and busses], wherein the telepresence device commands are received by the one or more telepresence devices over a communication link such that the one or more input devices are configured to control the one or more telepresence devices, wherein the telepresence devices provide the operator with one or more visual representations [Fig. 1, 27-30] of the operating environment (see Column 4, Line 15-Column 5, Line 37). (Office Action p. 8).

Applicants' claim 37 depends from amended independent claim 1. Therefore, Applicants respectfully request that the rejection of claim 37 be withdrawn in view of the aforementioned arguments, specifically, elements of Applicants' claim 1 are not disclosed in Diner.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 5,182,641 to Diner et al.

Claims 5 and 35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Diner et al.(U.S. Patent No. 5,182,641). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 5 and 35 are improper because the elements for a *prima facie* case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claim limitations.

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Regarding claim 5, Diner does not teach or suggest the elements of claim 1 from which claim 5 depends. Applicants herein sustain the arguments presented above regarding the lack of disclosure of the elements of the base claim. Therefore, Applicants respectfully request that the rejection of claim 5 be withdrawn.

Regarding claim 35, Diner does not teach or suggest the elements of claim 24 from which claim 35 depends. Applicants herein sustain the arguments presented above regarding the lack of disclosure of the elements of the base claim. Therefore, Applicants respectfully request that the rejection of claim 35 be withdrawn.
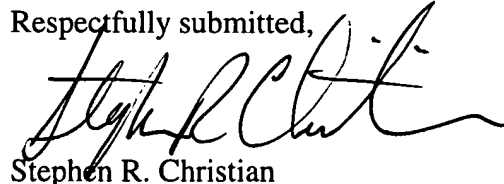
ENTRY OF AMENDMENTS

The proposed amendments to claims 1, 9 and 24 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application. Further, the amendments do not raise new issues or require a further search. Finally, if the Examiner determines that the amendments do not place the application in condition for allowance, entry is respectfully requested upon filing of a Notice of Appeal herein.

CONCLUSION

Claims 1-16 and 24-37 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,

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Enclosure: Version With Markings to Show Changes Made

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1.   (Twice Amended) A telepresence system for allowing an operator to interact with a remote operating environment, the system comprising:

   one or more input devices, wherein the one or more input devices produce raw data representative of operator commands;

   an input conversion module for converting the raw data into a zone structure wherein the zone structure represents the operator commands in a common format ~~independent of any of the one or more input devices~~;

   one or more device modules corresponding to one or more telepresence devices, the one or more device modules for converting the zone structure into telepresence device commands specific to the one or more telepresence devices, the telepresence device commands corresponding to at least a portion of the operator commands; and

   a configuration module for associating a specific one of the one or more input devices corresponding to ~~which generated~~ the zone structure with a specific one of the one or more telepresence devices which responds to the telepresence device commands resulting from the zone structure.

2.   A system as defined in claim 1, wherein the one or more input devices comprise one or more of: a headset, a keyboard, a mouse, and a joystick.

3.   A system as defined in claim 1, wherein only one of the one or more input devices is permitted to produce raw data at a time.

4.   A system as defined in claim 1, wherein one of the one or more input devices is capable of controlling a plurality of the one or more telepresence devices.

5.   (Previously Amended) A system as defined in claim 37, wherein the communication link is a wireless communication link.

6.   A system as defined in claim 1, wherein the one or more telepresence devices comprise one or more of a stereo camera set, a zoom camera, a pan and tilt device, a slider bar, and a robot.

7.   A system as defined in claim 6, wherein the pan and tilt device is connected to the stereo camera set and is capable of orienting the stereo camera set.

8.   A system as defined in claim 6, wherein the pan and tilt device is connected to the zoom camera and is capable of orienting the zoom camera.

9.   (Twice Amended) In a system having input devices and telepresence devices, a method for controlling one or more associated telepresence devices with a selected input device, the method comprising the steps of:

receiving raw data representative of movement commands from the selected input device;

converting the raw data into a zone structure, wherein the zone structure represents the movement commands in a common format ~~independent of the selected input device and the one or more associated telepresence devices~~;

when the selected input device is selectively associated with the one or more associated telepresence devices, processing the zone structure with a device module corresponding to each of the one or more associated telepresence devices to obtain telepresence device commands corresponding to at least a portion of the movement commands for each of the associated telepresence devices; and

transmitting the movement commands to the associated telepresence devices.

10. A method as defined in claim 9, wherein the selected input device is one of a headset, a keyboard, a mouse, or a joystick.

11. A method as defined in claim 9, wherein the zone structure is compatible with the telepresence devices.

12. A method as defined in claim 9, wherein the zone structure is capable of representing a plurality of speeds and directions.

13. (Previously Amended) A method as defined in claim 9, wherein the associated telepresence devices only respond to portions of the zone structure that correspond to the axes of the associated telepresence devices.

14. A method as defined in claim 9, wherein the raw data corresponds to actions of an operator.

15. (Previously Amended) A method as defined in claim 9, further comprising the step of executing the movement commands by the associated telepresence devices.

16. A computer readable medium having computer-executable instructions for performing the steps recited in claim 9.

24. (Twice Amended) A telepresence system for allowing an operator to interact with a remote operating environment, the telepresence system comprising:

a plurality of input devices;

a plurality of telepresence devices, wherein one or more of the telepresence devices is configured to be controlled by one of the plurality of input devices and one or more of the telepresence devices is configured to provide a visual representation of the operating environment;

a computer comprising:

an input conversion module for receiving raw data representative of operator commands from at least one of the plurality of input devices and converting the raw data to a zone structure wherein the zone structure represents the operator commands in a common format ~~independent of any of the one or more input devices~~; and

a plurality of device modules corresponding to the plurality of telepresence devices, wherein the device modules receive the zone structure and convert the zone structure to movement commands corresponding to the operator commands for each respective telepresence device; and

a communication link for transmitting the movement commands to the telepresence devices.

25. A system as defined in claim 24, wherein the telepresence devices comprises one or more stereo camera sets each connected with a different pan and tilt device and a zoom camera connected with another pan and tilt device.

26. A system as defined in claim 25, wherein the zoom camera is capable of providing stereo vision.

27. A system as defined in claim 24, wherein the raw data generated by the input devices correspond to zones, each zone representative of movement in a particular direction and speed.

28. A system as defined in claim 27, wherein the zone structure integrates any of the input devices with one or more of the telepresence devices.

29. A system as defined in claim 24, wherein the computer further comprises a configuration module.

30.   A system as defined in claim 29, wherein the configuration module comprises one or more views, wherein each view defines the one or more telepresence devices controlled by a single input device.

31.   A system as defined in claim 30, wherein the operator may select a different view.

32.   A system as defined in claim 29, wherein the one or more views stored in the configuration module permits a single input device to control different groups of telepresence devices.

33.   A system as defined in claim 24, wherein the plurality of telepresence devices provide the operator with a visual representation of the operating environment.

34.   A system as defined in claim 33, wherein the visual representation provides depth perception to the operator.

35.   A system as defined in claim 24, wherein the communications link is wireless communication.

36.   A system as defined in claim 24, wherein the plurality of input devices allow the operator to control the telepresence devices without the use of the operator's hands.

37.   The system as defined in claim 1, further comprising a communication link, wherein the telepresence device commands are received by the one or more telepresence devices over a communication link such that the one or more input devices are configured to control the one or more telepresence devices, wherein the telepresence devices provide the operator with one or more visual representations of the operating environment.